

POOR LEGIBILITY

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DUE TO THE QUALITY OF THE ORIGINAL



SFUND RECORDS CTR

2166-00983

December 22, 1986

Los Angeles County Department
of Public Works
Engineering Services Division
Post Office Box 2418
Terminal Annex
Los Angeles, California 90051

Attention: Mr. Carl Sjoberg

Subject: Ocean Technology, Inc. (OTI)
Underground Storage Tank
2835 N. Naomi Street
Burbank, CA 91504

In accordance with the October 1984 County of Los Angeles Guidelines for Underground Storage of Hazardous Materials, OTI is submitting the enclosed underground tank investigation report. The report was prepared by our environmental engineering consultant, Harding Lawson Associates (HLA), and includes a summary of the site's history, geology, hydrogeology, and laboratory analyses of soil samples taken during the investigation.

The HLA report also describes the following activities undertaken to remove the underground tank.

1. March 1985: A 550-gallon underground storage tank used to store spent trichlorethane (TCA) and isopropyl alcohol (IPA) was emptied; plans were made to remove the tank according to proper regulatory protocol per recommendation of LACDPW.
2. September 1985: During tank removal process, the empty tank was accidentally punctured. An on-site representative of LACDPW ordered the tank placed back in the ground and covered. LACDPW subsequently requested investigation for possible underground leakage.

Mr. Carl Sjoberg
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November 26, 1986

3. In October 1985, a consultant (Gregg and Associates, Huntington Beach, California) was retained to conduct a subsurface investigation. This initial investigation indicated that some TCA may have been present in the soil to a depth of 40 feet. The consultant recommended further action to characterize any contamination.
4. Later in October 1985, a second consultant, CH2M HILL of Newport Beach, California, was retained to continue the investigation. In November 1985, CH2M HILL submitted a proposed plan of action to OTI which was submitted to LACDPW for approval.
5. In February 1986, CH2M HILL bored and sampled soil to a depth of 82 feet. Analytical results from this boring taken within three feet of the first hole referred to in #3 above, revealed little or no TCA contamination.
6. In May 1986, HLA was retained to analyze the conflicting data and recommend a course of action that would satisfy regulatory requirements and protect public health. The HLA analysis concluded:
 - a. Soil conditions indicate any leakage would be confined to a very narrow vertical soil column.
 - b. Leakage volume is small based upon a comparison of material purchase and disposal records.
 - c. If leakage had been substantial, the HLA soil tests taken from around the tank and several feet directly underneath the tank would show high concentration of compounds. } *wrong!*
 - d. The site hole should be secured by removing the tank, refilling the hole and sealing the surface to prevent surface water infiltration of the subsurface.
7. In September 1986, the tank removal plan submitted to LACDPW was approved and the tank removed. Sixteen samples of the excavated soil were taken using a photoionization detector (PID). Readings were between 0 to 5 units indicating low concentration of compounds. Two soil samples were also taken approximately three feet below the bottom of the tank crater. Laboratory analysis of both samples reveal extremely low readings of 5 to 10 milligrams/kilogram, thus corroborating the PID readings.



Mr. Carl Sjoberg
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Based upon the above information, OTI believes there is sufficient evidence that deep vertical or horizontal migration of the compounds has not occurred and proposes it proceed with the following remedial action.

- a. Refill the excavation and compact in accordance with Burbank Fire Department regulations.
- b. Pave over compacted soil with concrete and asphalt.

Presently, the excavation is covered with lumber and water impermeable plastic sheets to minimize the possibility of surface water migration. Signs have been posted to keep employees out of the area.

OTI appreciates your cooperation and understanding during this project. Once we receive your approval of the remedial action, OTI is prepared to proceed with its implementation. Should you have any questions or comments, OTI and HLA are willing to meet with you at your convenience.

Very truly yours,

OCEAN TECHNOLOGY, INC.



Eugene Palic
Plant Engineer

EP:wp



OCEAN TECHNOLOGY, INC.



December 22, 1986

17876,001.11

Ocean Technology, Inc.
2835 North Naomi Street
Burbank, California 91504

Attention: Mr. Gene Palic

Gentlemen:

Conclusions and Recommendations
Underground Tank Investigation
2835 North Naomi Street
Burbank, California

This letter provides conclusions and recommendations for Harding Lawson Associates' (HLA) report to Ocean Technology, Incorporated (OTI) entitled "Underground Tank Investigation, 2835 North Naomi Street, Burbank, California," dated November 24, 1986.

The following conclusions and recommendations are presented separately from our report in order to emphasize that the subject report was written to present data only. Our conclusions and recommendations are based on HLA field investigations, OTI's records, and unverified data obtained by other consultants previously involved in the project. A review of the data that we obtained for our report suggests the following general conclusions:

1. Some seepage from the tank has occurred in the past.
2. OTI's inventory records indicate that the volume of leakage was probably less than 200 gallons. Laboratory tests of soil samples taken by HLA from directly beneath the tank tend to support the conclusion that the amount of leakage was relatively small.
3. Boring logs indicate that the soils beneath the tank are granular and permeable. This would cause seepage beneath the tank to migrate primarily vertically with limited lateral spreading. Therefore, seepage from the tank is probably limited to a relatively narrow, vertical column.
4. Laboratory analyses of soil samples taken from three borings close to the tank indicate soils have been affected by seepage of halo-genated volatile organic compounds to a depth of 30 to 40 feet.

December 22, 1986
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Mr. Gene Palic
Ocean Technology, Inc.
Page 2

Organic compounds were not detected in samples from 50 and 70 feet below the tank. Existing literature indicates ground water is approximately 185 feet deep in the area. We believe there is little likelihood that tank seepage has migrated to ground water.

We understand that OTI will submit this letter with our data report to the County of Los Angeles Department of Public Works for their review. In addition, we recommend that OTI request approval from the County of Los Angeles for the following additional actions:

1. Backfill the open pit with approved, compacted soil according to Burbank Fire Department regulations.
2. Pave the backfilled tank pit to prevent infiltration of surface water, decreasing the potential for downward migration of contaminants.

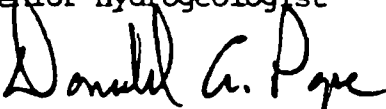
We would be pleased to answer any questions that you may have regarding these conclusions and recommendations.

Very truly yours,

HARDING LAWSON ASSOCIATES



Gary J. Halbert, C.E.G. 1318
Senior Hydrogeologist



Donald A. Pape, C.E.G. - 1190
Associate Hydrogeologist

GJH/DAP/slb

Harding Lawson Associates

Engineers, Geologists
& Geophysicists



UNDERGROUND TANK INVESTIGATION
2835 NORTH NAOMI STREET
BURBANK, CALIFORNIA

HLA Job No. 17876,001.11

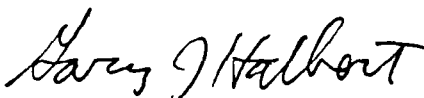
A Report Prepared for

Ocean Technology, Inc.
2835 North Naomi Street
Burbank, California 91504

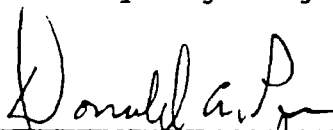
UNDERGROUND TANK INVESTIGATION
2835 NORTH NAOMI STREET
BURBANK, CALIFORNIA

HLA Job No. 17876,001.11

by



Gary J. Halbert, C.E.G. - 1318
Senior Hydrogeologist



Donald A. Pape, C.E.G. - 1190
Associate Hydrogeologist

Harding Lawson Associates
15621 Redhill Avenue, Suite 100
Tustin, California 92680
714/259-7992

November 24, 1986

INTRODUCTION

This report presents the results of a soil investigation conducted during the removal of a 550-gallon underground storage tank at Ocean Technology, Inc. (OTI) facilities located at 2835 North Naomi Street in Burbank, California (Plate 1). The investigation was performed by Harding Lawson Associates (HLA) and was authorized by OTI through HLA's Service Agreement, dated May 20, 1986.

BACKGROUND

General

The Burbank OTI property was acquired from Hydraulic Research Corporation (HRC) in July, 1973. The site is located in an industrial area at the eastern margin of the San Fernando Valley. The subject facilities are used by OTI primarily for design and assembly of electronic components.

Burbank Fire Department records indicate a 550-gallon underground tank was installed by HRC in 1965 for storage of machine cutting oil. OTI records indicate the tank has been used to store waste 1,1,1-Trichloroethane (TCA) and isopropyl alcohol (IPA) since OTI occupied the property. According to documented

manifests, reportedly on file with OTI, the tank was emptied four times; in 1977, 1979, 1981, and 1985. OTI's inventory summary (Appendix A) gives a breakdown of the purchase, usage, and disposal of 1,1,1-Trichloroethane and Isopropyl Alcohol from 1977 to 1985.

We understand that, in an effort to comply with Los Angeles County Department of Public Works (LACDPW) guidelines for underground storage of hazardous materials (enacted October 1984), OTI has undertaken the following:

1. In March 1985, the 550-gallon underground storage tank was emptied and sealed by the Oil Process Company of Los Angeles. Plans were made to remove the tank according to then-existing regulatory guidelines.
2. In September 1985, during the initial tank removal attempt, the empty tank was accidentally punctured. A representative of LACDPW, on site during removal, ordered the tank left in the ground and covered. LACDPW subsequently requested an investigation for possible underground leakage.
3. In early October 1985, a consultant (Gregg and Associates, Huntington Beach, California) conducted a subsurface investigation. The investigation included two 40-foot-deep borings and laboratory analyses of soil samples. A report by Gregg and Associates describing that work has been provided to LACDPW by OTI. The boring logs and laboratory results from that report are included for reference in Appendices B and C, respectively.
4. Later in October 1985, a second consultant, CH2M HILL of Newport Beach, California, was retained to continue the investigation. In November 1985, CH2M HILL provided a proposed plan of action to OTI which was submitted to LACDPW.

5. In February 1986, the work plan proposed by CH2M HILL was partially implemented by drilling and sampling one soil boring to a depth of 82 feet. A report describing the results of that work was not prepared. Draft copies of the CH2M HILL boring log and results of laboratory analyses soil samples are included for reference in Appendices B and C, respectively.

SCOPE OF WORK

In May 1986, HLA was retained by OTI to:

1. Review existing data and reports pertaining to site conditions and the history of the subject tank,
2. Assist OTI in arranging to have the tank removed,
3. Be present during tank removal to observe the condition of the tank and surrounding soils and to collect soil samples for laboratory analysis for volatile organics, and
4. Prepare this report.

Crosby and Overton/EMI (C&O/EMI) of Garden Grove, California was contracted by OTI to prepare a work plan and to remove the tank.

FIELD ACTIVITIES

The tank-removal work plan was approved by the LACDPW and the tank removal by C&O/EMI on September 26, 1986. A representative of the Burbank Fire Department was present during tank

removal. Mr. Joe Biacco of LACDPW was notified of the tank removal, but declined to attend.

An HLA geologist was present during the tank removal to record observations and take soil samples. Soil overlying the tank was excavated with a backhoe. The backhoe was used to remove the tank. Excavated soil was monitored with a photo-ionization detector (PID) equipped with a 10.2 million electron volt lamp calibrated against a benzene standard.

Two soil samples were collected from the excavation using the backhoe. One sample was selected from immediately beneath the tank at about 6 feet below original ground surface (Sample S-1); and another from 2 feet beneath the tank at about 8 feet below ground surface (Sample S-2).

The samples were placed in sealed glass jars, stored in a cooler with "Blue Ice," and delivered that day to Brown and Caldwell Laboratories in Pasadena, California.

The excavated soil (approximately 15 cubic yards) was left in a covered pile near the tank excavation.

SITE CONDITIONS

General

The geology and ground-water conditions at the site have been described in the November 1985 Proposed Plan of Action

prepared by CH2M HILL. Briefly, the site is located in an industrial area at the eastern margin of the San Fernando Valley Ground Water Basin. The site is underlain by several hundred feet of Quaternary-age, granular alluvium. Existing literature indicates that unconfined ground water is approximately 185 feet below the ground surface, and that ground water in this area flows to the south¹.

According to CH2M Hill, no active ground-water extraction wells are located within 1 mile of the site. One 2-inch-diameter monitoring well, maintained by LACDPW (Well No. 4969B), is located approximately 1000 feet south of the site.

Site Soils

A site plan is shown on Plate 2. The two boring logs (OTI-B-1 and OTI-B-2 in Appendix B) from the October 1985 Gregg and Associates report indicated soils beneath the paved tank area consist of silty sand to a depth of at least 6 feet, underlain by sand with little fines to a depth of 40 feet.

A draft copy of the field log of the CH2M HILL Boring B-3 was provided to HLA by OTI (included in Appendix B). The log indicates silty sand to a depth of 5 feet with sand, gravel, and

1. County of Los Angeles Case No. 650079, "Water Master Service in the Upper Los Angeles River Area", 1984.

cobbles extending from 5 feet to the bottom of the boring at 82 feet.

HLA's observations during tank removal in September 1986 indicate that the tank backfill consisted of moist, brown, silty sand with cobbles. The tank backfill appeared to be the same as natural soils surrounding the tank pit. The soils around the tank had a moderate solvent or alcohol odor with PID readings of 0 to 5 units.

Tank Condition

During the September 1986 tank removal, HLA observed that the empty tank was in a deteriorated state. The tank had several large holes, from damage during an earlier backhoe removal attempt (September 1985). The tank was finally removed in dismembered sections.

The tank was also deteriorated from corrosion. Mr. Lou Stone of the Burbank Fire Department commented that the tank appeared to be more corroded than when he observed it during the first removal attempt in September, 1985.

Laboratory Analysis

HLA soil samples S-1 and S-2, taken from beneath the tanks, were analyzed for volatile organics and isopropyl alcohol by EPA

Method 8240. The results of analyses are presented in Table 1. Laboratory test reports are given in Appendix C.

Table 1. Laboratory Results

	Concentration (mg/kg)	
	S-1	S-2
1,1,1-Trichloroethane	5	6
C-3 chlorinated hydrocarbon	8	10

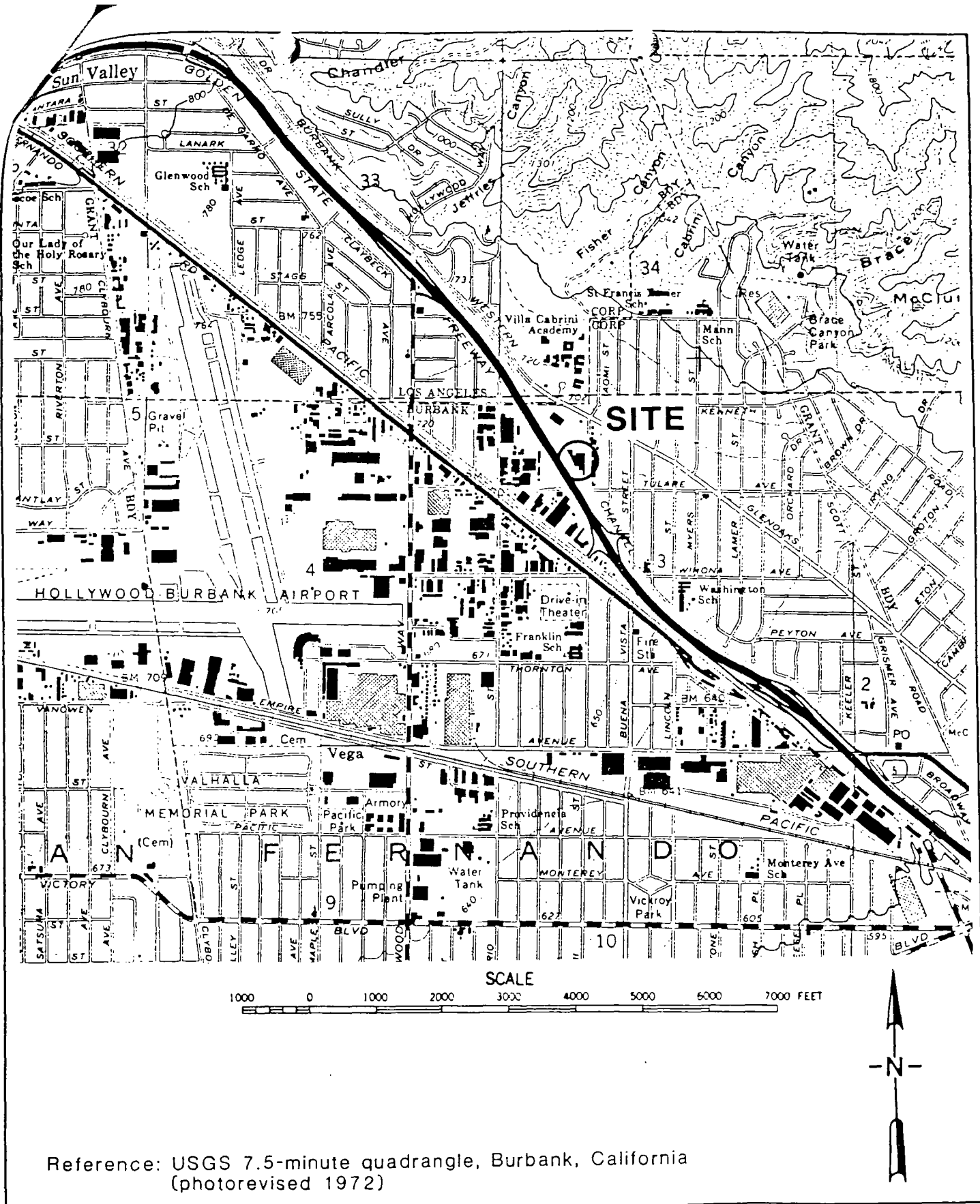
Notes: mg/kg = milligrams per kilogram
only constituents that were detected are listed

Both samples showed two compounds above detectable limits: 1,1,1-Trichloroethane (TCA) and an undifferentiated C-3 chlorinated (non-priority pollutant) compound. Isopropyl alcohol was not detected.

For reference, the previously-unreported results of laboratory analyses of samples from CH2M HILL Boring B-3 are included in Appendix C. Samples from 30 feet, 50 feet, and 70 feet were analyzed for oil and grease (EPA Method 418.1), isopropyl alcohol, and purgeable priority pollutants (EPA Method 8010). In summary, three analytes were detected in the 30-foot sample, whereas none of the analytes were detected in the two deeper samples. The three compounds detected at 30 feet were: oil and grease (170 mg/kg), isopropyl alcohol (140 mg/kg) and acetone (140 mg/kg).

Also included for reference in Appendix C is a copy of the results of laboratory analyses performed on soil samples taken from Borings OTI-B-1 and OTI-B-2. The laboratory report and the consultant's summary were excerpted from Gregg and Associates' report (dated October 21, 1985) which we understand is on file with appropriate regulatory agencies. The samples were analyzed for purgeable priority pollutants by EPA method 8010. Only TCA was reported. Briefly, a composite soil sample from OTI-B-1 contained 0.0007 mg/kg TCA. TCA was detected at 6.2 mg/kg at 5 feet, 12 mg/kg at 10 feet, and 520 mg/kg at 30 feet. The remaining samples at 15, 20 and 40 feet were all reported as less than 1 mg/kg TCA.

ILLUSTRATIONS



Harding Lawson Associates
Engineers, Geologists
& Geophysicists

VICINITY MAP
Ocean Technology, Inc.
Burbank, California

PLATE

1

DRAWN
11

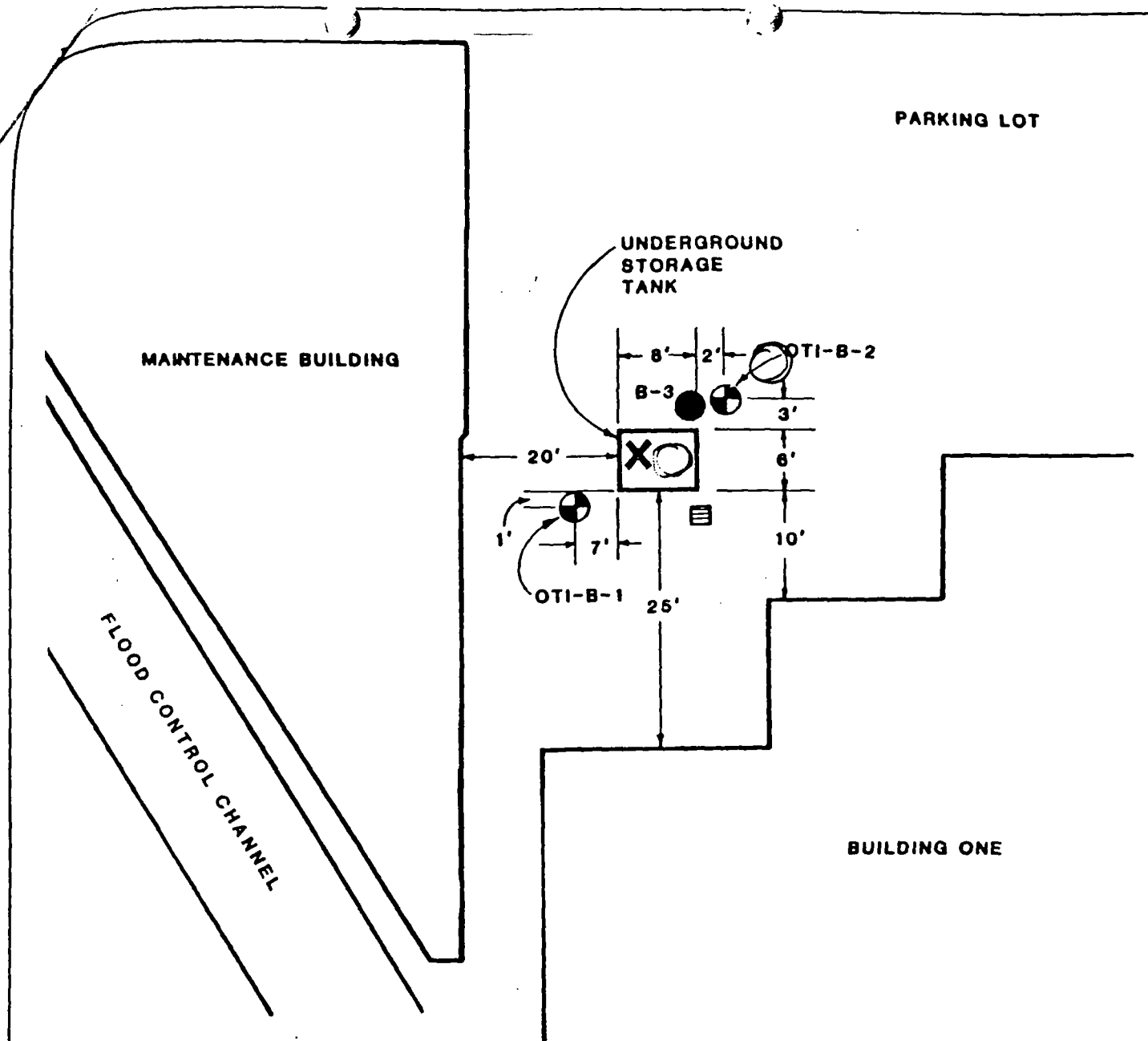
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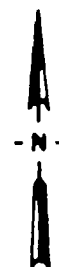
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DATE



EXPLANATION

- OTI-B-2  Borings drilled by Gregg and Associates, November, 1985
- B-3  Boring drilled by CH2M HILL, February, 1986
- X  HLA samples S-1 and S-2, September, 1986



NOT TO SCALE



Harding Lawson Associates
Engineers, Geologists
& Geophysicists

SITE PLAN

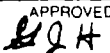
Ocean Technology, Inc.
Burbank, California

PLATE

2

DRAWN
11

JOB NUMBER
17876,001.11

APPROVED


DATE
10-31-86

REVISED

DATE

APPENDIX A

APPENDIX A

OTI Chemical Purchase/Disposal Analysis

Departmental Correspondence

Date 9 June 1986

To E. Palic

From

V. Spaccia *W8*

Subject: CHEMICAL PURCHASE/DISPOSAL ANALYSIS

The following figures are a breakdown of the purchase, usage and disposal of the chemicals Trichlorethane 1.1.1 and Isopropyl Alcohol during the period from 7/01/77 to 4/17/85. All records prior to this time have been destroyed.

Trichlorethane 1.1.1:

Total Purchased	3,350.00 gal.
Total Usage (48.15%)	1,612.94 gal.
Balance	<u>1,737.06 gal.</u>

Isopropyl Alcohol:

Total Purchased	1,199.00 gal.
Total Usage (72.72%)	871.97 gal.
Balance (Waste)	<u>327.03 gal.</u>

Combined Results:

Trichlorethane 1.1.1	1,737.06 gal.
Isopropyl Alcohol	327.03 gal.
Total Possible Storage	<u>2,064.09 gal.</u>
Actually Disposed Of	<u>1,950.00 gal.</u>
Seepage Loss	<u>114.09 gal.</u>

The percentage breakdown of the disposed chemicals (recycled) is 84.16% Trichlorethane 1.1.1 and 15.84% Isopropyl Alcohol. The gallon equivalent of that would be 96.02 gallons of Trichlorethane 1.1.1 and 18.07 gallons of Isopropyl Alcohol.

PUT IT IN WRITING: WRITTEN MESSAGES SAVE TIME AND AVOID ERRORS

APPENDIX B

PROJECT NUMBER N20391.30	BUREAU NUMBER 3
SHEET 2 OF 4	
SOIL BORING LOG	

PROJECT OTI LOCATION BURBANK
 ELEVATION _____ DRILLING CONTRACTOR GREGG DRILLING & TESTING
 DRILLING METHOD AND EQUIPMENT Hollow Stem Auger
 WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER D. MARK

ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
		INTERVAL	TYPE AND NUMBER	RECOVERY	6"-6'-6" (N)	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
						Same material - slightly higher % silt (still < 5%). More consolidated with depth, but still very little internal cohesion.		
35'						few cobbles		
						very few cobbles		
40'			3-40	Lab	34 blows/ft	Fine - coarse sand with fewer pebbles (2-3%). Well sorted - < 2-3% silt & clay		Easy drilling
45'						very few cobbles.		
50'			3-50	Lab	60 blows/ft	Fine - coarse sand with 3-5% pebbles and occasional cobbles. Mostly med. sand.		
			3-52	K. sent.	85 blows/ft	Moderately sorted - higher silt and clay fraction (max. 5%). Slightly moist.		cobbles significantly increase blow count and inhibit ability to get drive sample.
55'						occasional cobbles.		
60'			3-60	Lab	40 blows/ft	more cobbles and pebbles - see next page		

DRAFT

PROJECT NUMBER N20391.B0	BORING NUMBER 3
SHEET 3 OF 4	
SOIL BORING LOG	

PROJECT OT1 LOCATION BURBANK
 ELEVATION _____ DRILLING CONTRACTOR GR066 Drilling & Testing
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER
 WATER LEVEL AND DATE _____ START _____ FINISH _____ LOGGER D. Marx

ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
		INTERVAL	TYPE AND NUMBER	RECOVERY	6"-6'-6" (IN)	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						DRAFT		
65'								still drilling easy ≈ 2' / minute
70'			3-70	Lab	35 blows/ft	silty very fine to fine sand (slightly coarser). Moist-cohesive. Little clay (<1-2%). Few small pebbles. Slight reddish tint (previously med. brown - drying to light brown)		
			3-72	Kursat	22 blows/ft			
75'			3-75	Lab	70 blows / 1 1/2 in.	cuttings: mostly pebbles with fine sand and silt matrix. More moisture.		Very hard drilling - rig chattering. Very slow - ≈ 1' / hr. Very little material retrieved in 75' drive sample. Slightly easier drilling at 76'
80'			3-80	Lab	90 blows/ft	coarse sand and pebbles. Little silt (<5%). Numerous cobbles.		
85'						Boulders		Very slow drilling - boulders
90'								@ 87' part of pad supporting pad collapses - tank excavation not properly backfilled. Had to pull up 2' to re-support rig. Lost 2' of hole and large boulder came into hole. Unable to drill through boulder.

PROJECT NUMBER

N20391.80

BORING NUMBER

3

SHEET 4 OF 4

SOIL BORING LOG

PROJECT OTI

LOCATION BURBANK

ELEVATION

DRILLING CONTRACTOR

GREGG DRILLING & TESTING

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER

WATER LEVEL AND DATE

START

FINISH

LOGGER D. MARK

ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
		INTERVAL	TYPE AND NUMBER	RECOVERY	6"-6'-6" (IN)	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY USCS GROUP SYMBOL		DEPTH OF CASING DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
								No progress in 1 hr + Borehole abandoned. Backfilled hole with "5-sack mix". Soil samples taken to lab (Brown & Caldwell).


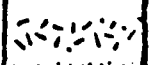



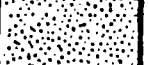



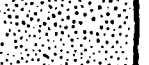
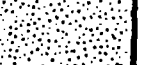
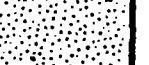


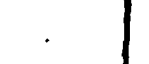

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Harding Lawson Associates

APPENDIX B

Boring Logs

OIT-B-1, OTI-B-2, Gregg and Associates, November 1985
B-3 CH2M HILL, February 1986 (Draft)

CONSTRUCTION DETAILS		DEPTH	LOG	BLOW CNTS	LITHOLOGY	DESCRIPTION
	Gastech (ppm)	- 0 -				inches sp, w/pebbles brown, moist
		- 3 -				
	6	- 6 -		5	-Asphalt -Silty fine medium	sp, fine to grain, brown,
		- 9 -			-Silty to coarse dense	
	23	- 12 -		23		fine to coarse brown, moist,
	17	- 15 -		17	-Sand grain dense	density pebbles
	18	- 18 -		25	-Increased occasional	
		- 21 -				
		- 24 -				
		- 27 -				
	0	- 30 -		50+	-Sample attained used	retained in 4 auger cuttings sample
		- 33 -				
		- 36 -				
		- 39 -				
	0	- 42 -		40+	-Sand, grain dense	fine to coarse light brown, moist

COMPLETION & BACKFILL
-Backfilled native
material, 0-40 ft

NUMBER OTIB1

Prepared for
TECHNOLOGIES, INC.
by
ASSOCIATES, INC.
OCEAN
GREEN

DESCRIPTION

CONSTRUCTION DETAILS

DEPTH

LOG

BLOW
CNTS

LITHOLOGICAL



Gastech
(ppm)

- 0 -

- 3 -

- 6 -

- 9 -

- 12 -

- 15 -

- 18 -

- 21 -

- 24 -

- 27 -

- 30 -

- 33 -

- 36 -

- 39 -

- 42 -

7

15

36

40

80+

45

-Asphalt,
-Sand, sp,
light br

-Silty sand
to med g
and cobb
medium d

-Sand (sp)
grain, w
pebbles,
brown, mo
strong o

has
ain,
alum dense
fine to
pebbles
own, moist.

to coarse
bles and
to dark
alum dense

COMPLETION & BACKFILL
-Backfilled concrete and
bentonite, 0-40 ft

BORING

PER OTIB2

Prep
OCEAN TECH

GREGG &

for
GIES, INC.
CIATES, INC.

PROJECT NUMBER

N20391, B0

BOLL NUMBER

3

SHEET 1 of 4

SOIL BORING LOG

PROJECT OT 1

LOCATION BURBANK

ELEVATION

DRILLING CONTRACTOR GREGG DRILLING & TESTING

DRILLING METHOD AND EQUIPMENT Hollow STEM AUGER - MOBILE DRILL MODEL B-53

WATER LEVEL AND DATE

START 0940

FINISH 1830

LOGGER D. MARK

ELEVATION	DEPTH BELOW SURFACE	SAMPLE			STANDARD PENETRATION TEST RESULTS 6"-6"-6" (IN)	SOIL DESCRIPTION NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
		INTERVAL	TYPE AND NUMBER	RECOVERY				
5'						Moist silty fine-medium sand.		Drilling easy. Driller indicates soil was very dry the last time he drilled at site. Moisture apparently due to open excavation above tank and recent rains.
10'						Med.-coarse sand with pebbles. Fairly clean - little silt & clay		
			3-3-10	Lab	21 blows/ft	Med.-coarse sand with pebbles and cobbles. Very little silt and clay. Slightly moist, but little internal cohesion due to large grain size. @ 10 1/2' numerous cobbles. Fewer cobbles after ~ 12'		Slower drilling due to cobbles. Faster drilling - fewer cobbles
15'								
20'								
			3-20	Lab	20 blows/ft	Med.-coarse sand with ~ 5-10% pebbles and occasional cobble. Moderately well sorted - little silt and clay (silt and clay combined < 5%). Slightly damp.		Fairly easy drilling except when run into cobbles
25'						occasional cobble		constant drilling rate
						28-29' more cobbles		slower drilling
30'								easier drilling
			3-30	Lab	21 blows/ft	-see next page		

DRAFT

APPENDIX C

APPENDIX C

Laboratory Analyses

S-1, S-2, Harding Lawson Associates, September 1986
B-3 CH2M HILL, February 1986
OTI-B-1, OTI-B-2, Gregg and Associates, October 1986



BROWN AND CALDWELL

ANALYTICAL LABORATORIES

LOG NO: P86-09-546

Received: 26 SEP 86

Reported: 14 OCT 86

Gary Halbert
 Harding Lawson Associates
 15621 Redhill Ave., Suite 100
 Tustin, California 92680

Project: 17876,001.11

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED	
09-546-1	S-1	26 SEP 86	
09-546-2	S-2	26 SEP 86	
PARAMETER		09-546-1	09-546-2
Purgeable Priority Pollutants			
Extraction		10/09/86	10/09/86
1,1,1-Trichloroethane, mg/kg		5	6
1,1,2,2-Tetrachloroethane, mg/kg		<0.3	<0.3
1,1,2-Trichloroethane, mg/kg		<0.3	<0.3
1,1-Dichloroethane, mg/kg		<0.3	<0.3
1,1-Dichloroethylene, mg/kg		<0.3	<0.3
1,2-Dichloroethane, mg/kg		<0.3	<0.3
1,2-Dichloropropane, mg/kg		<0.3	<0.3
1,3-Dichloropropene, mg/kg		<0.3	<0.3
2-Chloroethylvinylether, mg/kg		<0.3	<0.3
Acrolein, mg/kg		<3	<3
Acrylonitrile, mg/kg		<3	<3
Bromodichloromethane, mg/kg		<0.3	<0.3
Bromomethane, mg/kg		<0.3	<0.3
Benzene, mg/kg		<0.3	<0.3
Chlorobenzene, mg/kg		<0.3	<0.3
Carbon Tetrachloride, mg/kg		<0.3	<0.3
Chloroethane, mg/kg		<0.3	<0.3
Bromoform, mg/kg		<0.3	<0.3
Chloroform, mg/kg		<0.3	<0.3
Chloromethane, mg/kg		<0.3	<0.3
Dibromochloromethane, mg/kg		<0.3	<0.3
Ethylbenzene, mg/kg		<0.3	<0.3
Methylene Chloride, mg/kg		<0.3	<0.3
Tetrachloroethylene, mg/kg		<0.3	<0.3

LOG NO: P86-09-546

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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-546-1	S-1	26 SEP 86
09-546-2	S-2	26 SEP 86

PARAMETER	09-546-1	09-546-2
Trichloroethylene, mg/kg	<0.3	<0.3
Trichlorofluoromethane, mg/kg	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3
Vinyl Chloride, mg/kg	<0.3	<0.3
trans-1,2-Dichloroethylene, mg/kg	<0.3	<0.3
trans-1,3-Dichloropropene, mg/kg	<0.3	<0.3
Isopropyl Alcohol, mg/kg	<0.3	<6

Semi-Quantified Results **

A C3 Chlorinated Compound, mg/kg	8	10
----------------------------------	---	----

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.


Edward Wilson, Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

RECEIVED
FEB-12-1986

CH2M HILL
SOUTHERN CALIFORNIA OFFICE

LOG NO: PB6-02-030

Received: 03 FEB 86
Reported: 10 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-030-1	B-3-30	03 FEB 86
PARAMETER	02-030-1	
Oil & Grease by Infrared, mg/kg	170	
Isopropyl Alcohol, mg/kg	140	

LOG NO: P86-02-030

Received: 03 FEB 86
Reported: 10 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-030-1	B-3-30	03 FEB 86
PARAMETER	02-030-1	
EPA Method 8010		
Date Extracted	02/07/86	
1,1,2,2-Tetrachloroethane, mg/kg	<0.3	
1,1,2-Trichloroethane, mg/kg	<0.3	
1,1-Dichloroethane, mg/kg	<0.3	
1,1-Dichloroethene, mg/kg	<0.3	
1,2-Dichloroethane, mg/kg	<0.3	
trans-1,2-Dichloroethene, mg/kg	<0.3	
1,2-Dichloropropane, mg/kg	<0.3	
2-Chloroethylvinylether, mg/kg	<0.3	
Bromodichloromethane, mg/kg	<0.3	
Bromomethane, mg/kg	<0.3	
Bromoform, mg/kg	<0.3	
Chlorobenzene, mg/kg	<0.3	
Carbon Tetrachloride, mg/kg	<0.3	
Chloroethane, mg/kg	<0.3	
Chloroform, mg/kg	<0.3	
Chloromethane, mg/kg	<0.3	
Dibromochloromethane, mg/kg	<0.3	
Dichlorodifluoromethane, mg/kg	<0.3	
Methylene chloride, mg/kg	<0.3	
Tetrachloroethene, mg/kg	<0.3	
1,1,1-Trichloroethane, mg/kg	<0.3	

LOG NO: P86-02-030

Received: 03 FEB 86


Reported: 10 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-030-1	B-3-30	03 FEB 86
PARAMETER	02-030-1	
Trichloroethylene, mg/kg	<0.3	
Trichlorofluoromethane, mg/kg	<0.3	
Vinyl chloride, mg/kg	<0.3	
cis-1,3-Dichloropropene, mg/kg	<0.3	
trans-1,3-Dichloropropene, mg/kg	<0.3	
Other EPA Method 8010,	<0.3	
Acetone, mg/kg	140	


Edward Wilson, Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P86-02-037

Received: 03 FEB 86

Reported: 19 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-037-1	B-3-50	03 FEB 86
PARAMETER	02-037-1	
Oil & Grease by Infrared, mg/kg	<10	
Purgeable Priority Pollutants		
Extraction	02/14/86	
Acrolein, mg/kg	<3	
Acrylonitrile, mg/kg	<3	
Other Purgeable Priority Pollutants,	<0.3	

LOG NO: P86-02-037

Received: 03 FEB 86

Reported: 19 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-037-3	B-3-70	03 FEB 86
PARAMETER	02-037-3	
Oil & Grease by Infrared, mg/kg	<10	
Purgeable Priority Pollutants		
Extraction	02/14/86	
Acrolein, mg/kg	<3	
Acrylonitrile, mg/kg	<3	
Other Purgeable Priority Pollutants,	<0.3	

LOG NO: P86-02-037

Received: 03 FEB 86

Reported: 19 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED		
02-037-4	B-3-10	03 FEB 86		
02-037-5	B-3-20	03 FEB 86		
02-037-6	B-3-60	03 FEB 86		
02-037-7	B-3-40	03 FEB 86		
PARAMETER	02-037-4	02-037-5	02-037-6	02-037-7
Sample Held, Not Analyzed	HOLD	HOLD	HOLD	HOLD

LOG NO: P86-02-037

Received: 03 FEB 86

Reported: 19 FEB 86

John Dolegowski
CH2M.HILL
1301 Dove Street, Suite 800
Newport Beach, California 92660

Project: N20391.B0

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
02-037-2	B-3-80	
PARAMETER		02-037-2
Sample Held, Not Analyzed		HOLD

Edward Wilson, Laboratory Director

Results of laboratory analyses performed on the soil samples collected from the two borings are tabulated below. The laboratory report from Analytical Technologies, Inc. is included in Appendix B. In the laboratory report, a typographic error was made. The report states that the soil samples were analyzed for 1,1,1 - Tetrachloroethane (TCA). Upon receiving those results Gregg & associates, Inc. questioned ATI and found that a typographic error had been made and in fact the soil samples were analyzed for 1,1,1 Trichloroethane as requested. At the time this report was compiled, the corrected laboratory results report was not available, but will be forwarded when possible.

TABLE 1

BORING	DEPTH (FEET)	CONCENTRATION OF 1,1,1-TRICHLOROETHANE (PPM) → PPB
OTI-B-1	5, 10, 15, 20, 30, 40 (composite)	0.7
OTI-B-2	5	6200
	10	12000
	15	130
	20	150
	30	520,000
	40	150

ATI I.D. 28301

October 17, 1985

Gregg & Associates
18351 Beach Blvd. Suite L
Huntington Beach, California 92634

Attention : Pat Keating

Project No. : 85-154-001

On October 9, 1985, Analytical Technologies, Inc. received sixteen (16) soil samples in good condition. Six (6) samples from boring B1 were composited into one sample. The composite and the samples from boring B2 were analyzed for 1,1,1-tetrachloroethane (TCA).

The analysis of TCA was performed by gas chromatography/mass detector in accordance with EPA method 8010.

The results of the TCA analysis were reported to Pat Keating on October 16, 1985, by Liz Shigley of ATI.

The results of the TCA analyses are enclosed and the results for the PCB's will be sent at a later date.

Tina K. Augsburg

Tina K. Augsburg
Technical Associate

Reviewed by :

M. King
Mari King
Laboratory Director

Note: The samples from this project will be disposed of thirty (30) days from the date of this report unless we are informed otherwise.

ANALYTICAL TECHNOLOGIES, INC.

ATI I.D. 28301

1,1,1- TETRACHLOROETHANE
DATA SHEET

CLIENT : GREGG & ASSOCIATES
DATE RECEIVED : 10-9-85
DATE REPORTED : 10-17-85
PROJECT NO. : 85-154-001

SAMPLE MATRIX : SOIL
METHOD : EPA 8010
DATE ANALYZED : 10-16-85
UNITS : ug/Kg

ATI SAMPLE I.D.	CLIENT SAMPLE I.D.	TCA	SURROGATE RECOVERY %
5-10	B1 COMPOSITE	2000.7	72.8
11	B2-5'	6200	92.7
12	B2-10'	12000	107
13	B2-15'	130	75.2
14	B2-20'	150	67.8
15	B2-30'	520000	*
16	B2-40'	150	56.1

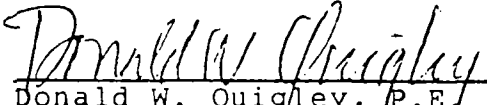
• DIRECT INJECTION- NO SURROGATE ADDED.

DISTRIBUTION

4 copies to: Ocean Technology, Inc.
2835 North Naomi Street
Burbank, California 91504

Attention: Mr. Gene Palic

QUALITY CONTROL REVIEWER:


Donald W. Quigley, P.E.
Principal Engineer

GJH/DAP/DWQ/slb